May 8, 2006
Project No. 4417000641

County of Mono
Minaret Mall, Suite P
P.O. Box 347
Mammoth Lakes, California 93546

**Attention: Mr. Gerry Le Francois, Planner**

**Re: Review Of Water Resource Documents: White Mountain Estates, Mono County, Prepared By Golden State Environmental, February 6, 2006**

## INTRODUCTION

At the request of the County of Mono, AMEC Earth & Environmental, Inc. (AMEC) has reviewed documents prepared by Golden State Environmental, Inc. (GSE), including the February 6, 2006 report referenced above and a memorandum regarding background data dated April 28, 2006. These documents reflect studies performed regarding the available water resources at the subject site and the potential impacts of the proposed development on these resources. The focus of AMEC's review was to assess the ability of the GSE documents to convey defensible facts relative to available water resources and potential development impacts. The following summarizes the potential issues associated with water resource development at the site and the information provided by GSE.

The available surface water at the site has been recognized as being insufficient to supply the proposed development. Therefore, the water resource defined for domestic supply is groundwater.

## 2 POTENTIAL IMPACT ASSESSMENT

Issue: Potential Groundwater Recharge

Potential recharge is important since withdrawing groundwater from an area at a rate greater than it is recharged will cause the water level in the aquifer to experience long term declines. The project proponents contend that the 40 proposed lots will require 40 acre feet/year of water (May 10, 2005 report). GSE estimates of recharge from the drainage basin above the site will provide up to 30 acre feet of water per year. The balance of the water is to be supplied by other sources. These other sources include input from neighboring basins, subsurface flow through the Chelfant Valley Aquifer, and septic return. Although the contribution of water to the area of the proposed development from the other sources is not well defined, it is apparent that the potential exists for there to be adequate recharge to the project area.

Issue: Impact to Neighboring Phase 1 Domestic Supply Well

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Immediately west of the proposed development is an existing development that has a public water supply well. This well is approximately 1,000 feet from the closest proposed White Mountain Estates (WME) domestic supply well. The distance drawdown assessment prepared by GSE (April 28, 2006) indicates that the area of influence of the WME wells is 450' at a pumping rate of 25 gallons per minute (the proposed required rate to meet 40 acre foot demand). Although the methods used to develop these figures were not well documented in GSE's reports, it is apparent from their assessment that the pumping of the WME's wells will have a minimum impact on the Phase 1 domestic well.

Issue: Potential Impact to Local Springs

Within the proposed project area are several springs, two of which are on the subject site. AMEC understands that these springs are important to wildlife and the local ecology. GSE has provided a geologic cross section of the project area. This cross section is based on data obtained from the geologic conditions exposed in the shallow fault trench excavations, the onsite test wells and local topography. The occurrence of local springs is depicted in the cross section as a function of faulting and subsurface flow upslope from the White Mountains. The cross section also indicates the groundwater tapped by the project test wells is in a separate and lower aquifer west of the springs. AMEC concurs with these basic geologic concepts. Therefore it is unlikely that pumping of the aquifer below the springs will have a significant impact on their flows.

Issue: Long Term Sustainability of the Resource

Without consideration for recharge, GSE contends that over a period of ten years about 24% of the available water within the aquifer will be depleted (February 6, 2006). Following GSE's logic the site has a potential development life of 40 years. Although this type of assessment is generally considered outmoded, the combination of information provided by GSE including potential recharge, soil conditions and potential area of influence of the WME wells suggests that the resource may be sustainable through a reasonable development life expectancy.

## 3 SUMMARY AND RECOMMENDATIONS

The water resource information provided by GSE through the submittal of documents to the County of Mono from May 10, 2005 to April 28, 2006 indicates that the potential impact to the water resources in the immediate vicinity of the proposed WME development should be negligible. Given that some gaps remain in the justification for the methods of analysis used by GSE in formulating their assessment and conclusions we offer the following suggestions should the County of Mono agree to the proposed development.

1. Include measures for water conservation within the approval. Conservation measures may include xeroscape landscaping coupled with high efficiency irrigation methods,

2. Water use could be metered with a tiered rate schedule,

3. Septic systems could be designed to promote return flow and minimize evaporation,

4. Surface runoff could be directed to unlined detention basins that promote infiltration and groundwater recharge.

AMEC hopes that this communication meets you needs. Should you have any questions regarding this letter please contact either of the undersigned.

Respectfully submitted,

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Environmental Services Manager
BW/MWM/dc

Mark W. McLarty CEG 1107
Associate Engineering Geologist

Encl.: None

c: Mr. Gerry LeFrancois, Addressee (1)